THE UNIVERSITY OF THE FUTURE: PERSPECTIVES FOR TANZANIA-

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AT THE TANZANIA HIGHER EDUCATION FORUM ON "UNIVERSITIES FOR

SUSTAINABLE DEVELOPMENT: TRENDS, PROSPECTS AND CHALLENGES"

ARUSHA,

12TH MAY 2010.

Contextual Perspective

In his book, ***Beyond Certainty,*** the British social and management critic, Charles Handy, observes that "because (the) history is long we feel that the future too will be a long time in coming. We may be surprised --- we don't have to wait for that future; we can shape it, but there isn't much time. It would be sad if we missed our future because of our past."

It would indeed be sad to miss our future because the future is actually now, as so well demonstrated by the expression that emerged in the 1990s, 'back to the future'. It is an expression that heightens the reality and centrality of a future that is not benign; rather a future that is dynamic and constantly evolving and often at dramatic speeds. This is the future that is with us. It is a future that manifests itself in the intensification of the globalisation of economics, finance, education and even culture. Information and communication technologies which are also fast changing in complexity and robustness are driving the

dynamic of the future, particularly in the developed and emerging economies. In these particular economies, e-learning, learning modules that are loadable in I-pods and the general use of multimedia now define the growing mode of learning and education delivery.

Evidently, the developing world cannot afford to miss this future that is fast evolving. In particular, African universities and other institutions of higher learning must lead the process of responding, managing and mastering the challenges of such future including participating in shaping it.

Let me offer a few perspectives about the dynamic and complex nature of the new global society and how critical it is for the African and, for that matter, the Tanzanian University of the future to understand better and seek to master it. In fact, there is a view that even the developed world itself is overwhelmed by the rapidity of change, its severity and unpredictability and struggles to manage it. Professor Thomas Homer-Dixon has powerfully captured this developed world picture in his magisterial book, ***The Ingenuity Gap: How can we solve the problem of the future?*** Professor Homer notes that Western triumphalism, which is based on a remarkable string of economic and political achievements, is evidentially selective and that "problems and issues that don't fit into this optimistic worldview tend to be downplayed or ignored". He proceeds to posit that the successes of the Western world are a result of "a confluence of events and processes that its elites neither controlled nor really understand. Western triumphalism is dangerously self-indulgent, and even delusional." Some of the examples Homer offers to reinforce his view tell a major story about the complexity of the environment the world finds itself in. He refers to challenges ranging from international financial crises, global climate change to pandemics such as tuberculosis and AIDS,

challenges which, in his view, "seem to be largely beyond our ken-incomprehensible even to our leaders and specialists."

In the context of all global societies, however, it is important to have an appreciation of the complexity of the unfolding environment. In a highly perceptive book, ***The Black Swan: The Impact of the Highly Improbable***, a Lebanese-American, Nassim Nicholas Taleb shocks us all with new thinking about the unthinkable which increasingly will determine how humanity seeks to have a deeper understanding about the world it lives in and about its very survival. Taleb notes: "There are so many things we could do if we focus on anti-knowledge or what we do not know." He further observes that human ingenuity is constrained by "excessive focus on what we do know: we tend to learn from the precise, not the general." His basic thesis is that the world is no longer understandable, explainable or predictable. Yet if we closely examine our higher educational systems and curricula, in all societies, developed and developing, in the context of Taleb's conjecture, what turns out is that there is too much focus on learning the facts and not the rules. As a consequence, there is the general inadvertent failure to respond to what Taleb describes as "the modern, complex and increasingly recursive environment." In this context, events like the rise of Google, Al Qaeda, the 9/11 attacks, Islamic fundamentalism and the recent global financial crisis fit what Taleb describes as the "Black Swan" phenomenon. Nobody ever thinks of a swan being black; it is always assumed to be white. Thus, the "Black Swan" phenomenon is characterised by a highly improbable event whose key characteristics are unpredictability, massive and destabilising impact and the tendency by people to concoct explanations that make an event appear less random and more predictable than it in fact was.

From a different angle but articulating a similar perspective on what the future portends and what mindset is relevant for responding to such future, Prof. Howard Gardner has suggested in his book, *Five Minds for the Future*, that people who are charged at work places with selecting individuals who appear to possess the right kind of knowledge, skills and minds "should be searching for individuals who possess disciplined, synthesising, creating, respectful and ethical minds." What we need to ask ourselves, flowing from the Black Swan phenomenon and Gardner's mind attributes for the future is whether our universities, around the world, promote learning systems capable of producing individuals who are adept to confronting the new black swan environment and who possess the type of attributes suggested by Professor Gardner. Put differently, can we postulate that the historical mission of the university is still relevant to today's fast changing environment and the new challenges of social and economic transformation? And where do we locate the University of the Future in this particular context and specifically in the context of the African and the Tanzanian University of the Future?

This paper attempts to examine this primary question from three perspectives. First, the perspective of the relevance and efficacy of the historical mission of the African University and how the university has performed; second, from the perspective of the national, social and economic challenges that confront the African nation- state and of the role of the African university within it; and, third, from the perspective of the impact of the complex and dynamic global economic and technology-driven environment. Finally, the paper will propose how the African and Tanzanian University of the Future should strategically re-position itself by re-defining its traditional mission in order to respond to the demands of the new economy and the subsisting challenges of development as captured in the Millennium Development Goals.

The African University: Historical Mission, Relevance and Efficacy

The African university predates African political independence. Yet the mission of the African university can best be viewed and examined from the context of the post independence period. It is such mission and how the university has performed that poses burning questions about relevance, quality and effectiveness of the African university within the broad dimension of national expectations and the social and economic dynamics of transformation. Indeed, the debate about the role of the African university has often centred on the delicateness of, and, sometimes, the debatable balance between the traditional mission of the university which the African university emerged from its colonial past and the need for the university to serve the new national public interest.

In the past two decades, this debate has taken a complex character as a result of what Professor Akilagpa Sawyerr has described as the "transformations in political economy at both the global and local levels" precipitating a struggle in African universities "to reposition themselves". The ramifications of this debate are examined in the next two sections of this paper.

The Emergence of the Mission of the African University

The core mission of the African university is usually associated with the UNESCO/Economic Commission for Africa Conference of University Leaders held in Antananarivo, Madagascar in 1962. That Conference emerged with the consensus that the African university should be "a key instrument for national development". It is important to note, however, that at the

political level, the mission of the African university had already been articulated in 1961 by the late Mwalimu Julius Nyerere. When inaugurating the Faculty of Law, as part of the University College Dar es Salaam in October 1961, Nyerere stated that "for while other people can aim at reaching the moon and while in future we might aim at reaching the moon, our present plans must be directed at reaching the villages". Nyerere was, in other words, calling for a University that was, in its output, relevant to local conditions. Later in June 1963, when inaugurating the University of East Africa as the first Chancellor of that University, Nyerere went further to elaborate that the African University "must be in and of, the community it has been established to serve".

That formative idea of a developmental university was later to receive its most cogent and articulate expression in Mwalimu Nyerere's address to the World University Service General Assembly held in Dar es Salaam in June 1966 which was titled, *'The Role of Universities'.* Critically examining the role of universities in a developing country, Nyerere argued that "when people are dying because existing knowledge is not applied, when the very basic social and public services are not available to all members of a society, then that society is misusing its resources if it pursues pure learning for its sake."

Mwalimu Nyerere was, however, careful in drawing the delicate balance between the traditional role of the university that seeks the pursuit of pure knowledge or intellectual objectivity, which he saw as an important contribution by universities in developing countries to the world of knowledge, on the one hand, and the role of the university in a developing society whose principal focus should be the satisfaction of the needs of the country. Clarifying the balance, Nyerere observed that it was his conviction "that universities in countries like Tanzania have other urgent tasks to fulfil which will test their resources –

human and material – to the utmost. I do not believe that they can at this stage pursue 'pure research' and 'knowledge for its own sake' without neglecting other functions which are for the time being more important.

Nyerere's thinking about the core mission of the African university received support and further reinforcement from various sources. At a Workshop of the Association of African Universities held in Accra in 1972 under the theme *'Creating the African University: Emerging Issues in the 1970s,* it was agreed that African universities had to reflect an "African identity". Such identity has been powerfully described by Prof. J.F. Ade Ajayi et al as a revolutionary shift "away from the traditions of Western universities" and on the need for the African university to "evolve a different approach to its task." In Ajayi's view, the truly African university must be one that draws its inspiration from its environment; not a transplanted tree, but one growing from a seed that is planted and nurtured in the African soil.

The Crisis of the Developmental University

From the perspective of the previous analysis, what is interesting to delve further into is whether the concept of a developmental university in Africa has stood the test of time. Indeed, it is important to critically examine the concept of a developmental university itself in the light of the intensification of globalisation and the adoption of the neo liberal social and economic ideology in most African nations in the past two decades. In other words, it is important to interrogate whether it is possible to have a developmental university in a situation where the Developmental State itself has retreated from its fundamental role as conceived in the immediate post-independence period.

It should be recalled that the Developmental State was interventionist in the social and economic sphere of public life. It was an economic philosophy that was not necessarily anchored on the pursuit of a socialist ideology as such, as in the promotion of social justice through the vehicle of a welfare state. The role of the state was thus well defined in the period between African independence, starting with Ghana in 1957, and the mid 1980s and within which context one could logically determine the meaning and role of a developmental university as well. At the height of neo-liberalism, however, marked as it is by new policies that champion market fundamentalism, the concept of a developmental university has not only been challenged but has also fallen victim to commoditisation of higher education, ostensibly in response to the demand that universities satisfy the demands of the market place; an idea well articulated by Professor Derek Bok in his book, *Universities in the Market Place: The Commercialisation of Higher Education* in the specific context of the American tertiary education environment. Professor Mahmood Mamdani in his book, *Scholars in the Marketplace: The Dilemmas of Neo-liberal Reform at Makerere University* has also chastised the neo-liberal agenda for undermining scholarship at one of Africa's oldest and supreme Universities, Makerere, in Uganda.

The crisis of the developmental university can also be viewed in the context of the state of ferment of the African university as political pluralism and democratisation have taken centre stage in the national milieu. The university has increasingly sought to apply knowledge to influence radical social change. Indeed, in the context of Tanzania, as far back as April 1990 when political pluralism had not even officially set in, six Staff Associations of Institutions of Higher Education in Tanzania adopted a **Declaration on Academic Freedom and Social Responsibility of Academics.** It was pointed out in that Declaration that the State had become increasingly authoritarian manifested by "increasingly greater, deeper and more

frequent encroachments on academic freedom and freedom to pursue truth and knowledge, particularly in universities and other institutions of higher education."

The Declaration went on to outline some basic principles on education for human emancipation, one of which makes reference to education that develops "critical faculties, inculcate the spirit of scientific enquiry and encourage the pursuit of knowledge and search for the whole truth in the interest of social transformation and human liberation." The evident paradox here is that the leading members of the Tanzanian academic society, even in the early 1990s, were still viewing the Tanzanian university in the context of the traditional mission of the university, in its classical sense, without seriously contextualising such role within the broader goal of the realisation of national social and economic transformation.

In this context, it came as no surprise that when the Late Mwalimu Nyerere was invited as Guest of Honour at the University of Dar es Salaam in July 1995 as part of the 25th Anniversary Celebrations of the University, he chose to return to his favourite theme about the relevance of the African University. In his address titled *'The Link between the Economy, the Society and the University,* Nyerere pointed out that "a nation finances a university for its own purposes. In doing so, it expects the university to fulfil three functions. These are: to transmit advanced (and advancing) knowledge from one generation of mankind to the citizens of another generation; to provide educated and trained high level manpower needed by that society; and to be a centre for the nation to advance the frontiers of knowledge". Nyerere went on to add that the university could not "divorce itself from the nation's troubles or its triumphs." He specifically underscored the importance of advancing knowledge in genetic engineering and biotechnology in changing life and of the reproductive structure of crops and animals; and further referring to informatics, nuclear energy and the

environment, concluding that science and technology constituted the keys to survival as well as to robust development in the future.

The foregoing analysis presents the nature of the crisis that confronts the university; examined from the context of the dichotomy between the traditional mission of the university and that of the developmental university as partly viewed by the late Mwalimu Nyerere. Therefore, in seeking to determine the nature and character of the University of the Future it is important to be very clear about this dichotomy and, more correctly, to determine where the balance should be struck between the classical mission of the university and the role of the university in responding to the tasks and the heightened demands of social and economic transformation in the globalising world. I am raising this point to put into focus the academic ferment which manifests itself in the castigation of the shift from a university education system that fosters values and the process of critical enquiry to what Professor Issa Shivji describes as a higher education system that behaves like a kiosk that churns out commodities, a la *"Mama Ntilie"* (the Tanzanian informal sector cooked food purveyors) which also seems, today, to have some global appeal. In his critical paper, From *Neo-liberalism to Pan Africanism: Towards Reconstructing an Eastern African Discourse.* Shivji laments, in the context of the impact of neo-liberalism on higher education in Africa, that the "public intellectual, whose vocation is to comment, protest, caricaturise, satirise, analyse, and publicise the life around him or her is rapidly becoming history." In his view, any serious discourse has to be based on ideas and their contention. I guess no one is completely right over this debate. However, precisely for this reason, university education should allow an environment where hundred flowers are allowed and enabled to bloom!

In a similar context about the erosion of the traditional mission of the university as articulated by Mamdani and Shivji at the East African level, Professor Mary Evans has led an attack on the interventionist role of the state in public universities in the United Kingdom. In her book, *Killing Thinking: the Death of the Universities,* she observes that a new model which makes more explicit the economic roles of the university, which she defines as a political culture, is superseding the culture of intellectual engagement. She goes on to argue that "ideally, what can be set in train by university education is the ability to recognise the relationship between ideas and how to evaluate them."

As noted earlier, this whole debate and the questions it raises about the role and mission of the university from the classical sense and the role of the developmental university, go to the heart of how the University of the Future should be viewed and conceived, particularly in a developing country situation like that of Tanzania.

There are, of course, other equally important issues that need to be examined, the most immediate one being the implications for the University of the Future arising from the evolving national, regional and global, social and economic and technology developments and their challenges.

Role of the African University: Perspectives from Social and Economic Realities and Challenges

Despite the evident challenge of striking a delicate balance between the promotion of the traditional role of the university and making the African university respond to the needs of a developing society, the African university has, on the whole, been able, particularly between

the 1960s and 1980s, to rise to the expectations of the public interest by providing locally trained multi-skilled people, expertise and leaders, much as these have largely been for the State bureaucracy and public sector management. Even then, there is a general view that the central enemies of development, which were identified at the onset of political independence, namely, poverty, ignorance, disease and unemployment remain pervasive. The expectation that the African university would help solve these problems has largely been disappointing. Indeed, most African countries, from the mid 1980s, sought bailouts from the World Bank and the International Monetary Fund due to what has been described as the lost decade of the 1980s.

The economic crisis that afflicted most African countries from the early 1980s to the late 1980s is often attributed to a worsening global economic environment that set in from the late 1970s flowing from the oil price crisis and extreme low prices of agricultural commodities. Yet African countries cannot, surely, escape contributory responsibility for internal economic mismanagement in policy and in implementation of development programmes. Indeed, in the specific context of Tanzania, it is well documented that there was a public sector or parastatal failure. It is debatable though whether such economic mismanagement could be attributed to a dysfunctional role of the university vis a vis that of public policy making. The role of the University of the Future, especially in the case of the public university, may thus hinge on the interface between public policy appropriateness and efficacy and how the university, as a training institution, produces the people able to tackle the very development deficits that are already undermined by the lack of clarity of strategic development thrust and adequate allocation of supporting resources.

Yet, in all these challenges, the transformation of the global, regional and political economy, marked by the rise of the hegemony of the market, globalisation and regionalism as well as by the erosion of the welfare state at a time when there are rising expectations from the broad masses for better quality of life, present a new set of factors and conditions which impact the African Higher Education System. The obvious question that immediately emerges is whether the African university today is well positioned to cope and address all these new factors and conditions, which we examine below.

The Changing Character of Secondary Education in Tanzania

The first major factor that challenges the higher education system today is the changing character of secondary education. Until the early 1980s, the public African university, and, the Tanzanian University, in particular, was not as delibitated by the challenges of explosion in tertiary enrolments. Government funding of the public university was largely adequate to meet the cost of higher education delivery and at quality levels. However, as the World Bank Report, *Accelerating Catch-up: Tertiary Education for Growth in Sub Saharan Africa* shows, between 1991 and 2005, tertiary enrolments in sub-Saharan Africa have more than tripled. At the same time, tertiary public financing, which averaged USD6, 800 per student annually in 1980, dropped to USD981 in 2005 for the 33 low income African countries. Inevitably, the quality of education, relevance and research capabilities have suffered. Tanzania is no exception.

Examining this challenge of massification in tertiary enrolments from the Tanzanian perspective, the phenomenal pressure on higher education's effectiveness is exposed. First of all, under the Secondary Education Development Programme (SEDP), the transition rate to secondary education has jumped from 21.7% in 2002 to 50% in 2009. Enrolment to first year

of Secondary School (Form 1), on the other hand, has jumped from 97,694 in 2002 to 500,000 in 2010. The total number of students in Secondary schools has jumped from 345,000 in 2003 to two million in 2010.

The World Bank, as the major supporter for secondary education development in Tanzania, has taken serious concern about Tanzania's fast expansion of secondary education in the light of the unsustainable overall budgetary implication on educational delivery. In its 2009 Report titled, '***Implications of Secondary Education Expansion in Tanzania: The Quest for Greater Enrolment and Quality',*** the Bank cautions on the government expenditure implications of rapid secondary education enrolment; the decline in public unit expenditure per secondary school student which, at 20% of per capita GDP in 2007 is very low compared to the Sub-Saharan African average of 38% and finally, the large number of under qualified teachers. Yet, under the National Strategy for Growth and Poverty Reduction (MKUKUTA), as reflected in the SEDP, the Government still plans to increase secondary education enrolment by 50% for Form 1 to IV and by 25% for advanced level secondary education by 2010. The recurrent budgetary implication for such expansion will be 1.7% of GDP. However, if you were to add the planned 3% of GDP expenditure for primary education and 2% of GDP for secondary and tertiary education, the overall recurrent budget on education for Tanzania, as per the World Bank's estimates, could reach 7.2% of GDP in 2010. Such a budget commitment would translate into 40% of the total recurrent budget compared to 27% in 2007/08. Clearly, this would be a highly unsustainable fiscal position for Tanzania and its implications on the Public University of the future for Tanzania could be destabilising as it would mean less available resources to fund teaching and research at world class level.

Implications of Secondary Education Expansion on Tertiary Education

In the context of the foregoing planned rapid expansion of secondary education and the huge consequential budget outlays, the question that looms large is what are the implications on tertiary education? One response has been the rapid development of private tertiary education in Tanzania. Since 1990, a number of private universities and private university colleges have been established. According to data from the Tanzania Commission for Universities (www.tcu.go.tz), these private tertiary institutions now number 21 with a total enrolment of 26,191 (of whom 10,400 are female students). This enrolment figure contrasts with the student enrolment in 9 public universities totalling 75,031 (of whom 23,613 are female students).

The trend in the growth of private universities is global. Private higher education now accounts for 30% of global student enrolment. In India, 75 to 80% of higher education institutions are now private. Whilst this growth and expansion of the private university is a positive response to the challenges of access to higher education, resulting from the rapid expansion of secondary education, there are, however, emerging concerns about quality of teaching and of research. In Tanzania, for example, the 21 private universities had, in 2006/2007, only 85 PhDs and 250 Masters Degree Academic Faculty compared to the 9 public universities which, during the same period, had 842 PhDs and 716 Masters Degree teaching staff.

This huge contrast on quality of teaching faculty reflects a worrying problem of quality, both for teaching and for research. At a time when there is huge competition amongst universities around the world for attracting the best faculty as well as outstanding students within the context of building world class universities, this question of quality in teaching and research

takes pre-eminence and significance. Building a world class university demands a good mix of local faculty and international faculty. Whilst world class universities like Harvard and Oxford have a good share of international faculties, 30% and 36% respectively, most African universities today have lost such a good faculty mix with most academics being nationals, reflecting massive in-breeding.

At another level, the erosion in quality for teaching and research has to be viewed in the context of the expansion of academic disciplines, especially in public universities, as well as in the growth of specialised colleges and schools. There has been a phenomenal expansion of academic courses in the last decade which has inevitably demanded additional funding for the extra teaching staff and teaching facilities. This expansion raises the fundamental question whether, in a poor country, the public university should not plan its academic courses with greater attention being paid to their immediate relevance to meeting national development challenges and priorities. In this vein, it is little wonder that Government funding for research and particularly applied research has declined significantly.

According to UNESCO, in the OECD countries the government sector funds directly or indirectly 72% of all academic research. At the University of Dar es Salaam, in contrast, total funding for research in 2007/08 was only shillings 3.8 billion and most of it is donor funded. Overstretching government budget exposure to the broader education sector, as noted in the the SEDP case, would almost certainly undermine funding for research and applied research whose impact on promoting economic transformation is significant. It is important to give this situation the attention it deserves because it is easy to blame universities for not playing a developmental role when in fact public policy may be more responsible for the lack of impact on the part of universities due to poor strategic planning on resource allocations. In sum,

these issues are a call to arms about how the University of the Future can address the demands of massification and the stress being imposed on the academic profession. If not well addressed, there is a clear danger that the quality of degrees and research output of universities will decline.

The rapid expansion of secondary education has another dimension, namely, the crisis of enrolment in tertiary education. For whilst private universities have played a role in reducing the crisis by boosting their enrolments from a low of 819 students in 2002/03 to 34,013 presently, the overall national participation rate or gross enrolment ratio in Tanzania is still very low, at around 3% compared to the sub-Saharan African average of 5%. This low level participation rate also raises a number of questions. The first one centres on issues of social equity. The present structure of participation rate reveals that few schools located in few regions of Tanzania, with a clear contrast between urban and rural schools, monopolise admission to universities and particularly public universities which appear to enjoy greater prestige.

The upshot of this phenomenon is that there is, as Professor Aki Sawyerr has put it in the context of the Ghanaian situation, "a skewing of opportunities of university education in favour of high income and residents in selected urban centres." Such social stratification goes to reinforcing privilege in society. Indeed, students from middle and high income groups also get to enjoy state support for higher education. Professor James Coleman, in reference to this phenomenon, has warned that "fundamental group inequalities in society tend to be powerfully self perpetuative and the fragile and vulnerable apex of the education system is not the place where they will be resolved." So how would the University of the Future address such a conundrum? Should public policy move in the direction of balancing merit

and equity for enrolment into tertiary education the way that the Indian Constitution does in relation to the so called backward regions and the marginalised lower castes reserving a fixed set of admission spaces in universities? Should the same criteria also extend to dealing with gender imbalances? It is significant to note though that Tanzania is one of the few African countries to have lowered public university admission cut-offs for women effective university academic year 2006/2007 in order to bolster female enrolment with the result that female student undergraduate enrolment has risen from 7.5% of total student enrolment in 2003 to 34% in 2010. However, the challenge of giving additional access to women students, especially those pursuing science education and who can bring about social and economic transformation at community levels, has to be frontally tackled.

Growing Demand for New Skills and Expertise

The second factor which impacts tertiary education in Africa and in Tanzania is the growing demand for a larger pool of good quality graduates and post graduates in fields relevant to the globalising, regionalising and dynamic national economic environments that are increasingly market driven. Earlier, we took note of the crisis of relevance that confronts the African university in the context of the contentious and sometimes conflicting paradigm of development. Yet, the strategy of economic development in Africa cannot be oblivious of the transformations that are taking place globally and regionally and which impact it intensely. Professor Benno Ndulu et al in his book *Challenges of African Growth: Opportunities, Constraints and Strategic Directions,* views Africa's development challenges as lying, primarily, on expanding tertiary education enrolment as part of a growth and competition strategy. He argues that "composition of disciplines should lean away from their earlier bias towards social sciences and move toward science and technology and business education."

With specific reference to public universities, Ndulu postulates that they should "be more responsible to the changing needs of the clientele and be more cost effective." In similar vein, the World Bank Report referred to earlier, *Accelerating Catch-up* points out that the strong enrolment growth at tertiary education levels has not generated enough graduates and that many of the graduates "lack the skills needed to support national economic development in the 21st century." The Report attacks choices made by public policy making institutions responsible for planning human resource needs and for their development as having been probably off-target.

The general conclusion is that African universities have fallen out of touch with the development realities of their countries. One specific area of deficit identified is the inadequate enrolment in science and technology education where only 28% of tertiary students in Africa were enrolled in 2004. Little wonder that the World Economic Forum's Global Competitiveness Report 2009-2010 places Tanzania 120th out of 134 countries on innovation and 120th on technological readiness. The World Bank Report, *Accelerating Catch-Up* also shows that research output is grossly inadequate in Africa generally because Africa devoted only 0.3% of GDP to research and development in 2004. Tanzania is one of few African countries that have now made a commitment to spend 1% of GDP on research and development. It is in this context that Harvard Professor Calestous Juma has called for reinventing the African university. His central argument is that the main role of the first generation of the African universities was to create civil servants. That classical model, however, has become a "template within which new universities are created, even though social and economic needs have changed radically." In this vein, there is a broad consensus that the mission of the African university should shift from the current dominance on teaching basic academic disciplines, without sacrificing the importance of developing leaders

with generalist knowledge able to challenge the "Black Swan" mentality and promoting ethical values in society, to offering more professional programmes. This refiguring role of the university has to give greater emphasis to developing specialists in the fields of science and technology.

These shifts in university roles should correspond to the ideas fertilized in the South Commission Report, *The Challenge to the South.* That Report observed: "insufficient attention has been given to the importance of fostering a science and technology culture through the education system. Education has too often continued on the lines set in the past, and has been too academic and unsuited to the scientific, vocational, and other needs of societies in the process of modernisation." The Report proceeds to call for "the overhaul of educational system, in order that more attention may be given to education in science and to training in engineering and technical skills." But related to such overhaul in educational system is the equally forceful call for the adoption of national "science and technology policies which lay down clear sectoral policies, integrate science and technology in national plans and provide adequate resources for strengthening scientific and technological capabilities."

These ideas regarding the overhaul of educational systems and the provision of more funding for promoting greater science and technology capability have been well documented in the Agricultural Innovation in Africa Report, *'The New Harvest'.* That Report developed under the leadership of Professor Calestous Juma underscores the centrality of scientific knowledge in promoting agricultural productivity and sustainability. The Report notes that the stark failure in improving agriculture in Africa stems from the lack of application of scientific and technological knowledge in the sector.

New skills and expertise in the new regional and global economic environment also have close bearing on entrepreneurial capabilities and management of knowledge economy enterprises. In the East African context, for example, deepening integration that would be unleashed by the entry of the Common Market with its central drivers of free movement of labour, services and capital will demand that countries like Tanzania quickly develop a new breed of multi-skills and professional expertise in economic activities ranging from tourism and hospitality, capital markets, banking, auditing and corporate management consultancies, medical insurance, financial services and a wide range of transport and trade logistics. Unfortunately, the tertiary education system in Tanzania is very weak in most of these knowledge economy sectors. This weakness is reflected in the very low place Tanzania occupies in the global index of quality of higher education and training, at 128 out of 134, in accordance with the Global Competitiveness Report 2009-2010.

It thus follows that the competitiveness of the Tanzanian and, indeed, of most African economies, crucially hinges on the development of new skills and expertise that fit the new global economic landscape. Concomitantly, it is important that the University of the Future in the East African region seriously takes the challenge of producing university graduates who are regionally and globally minded; who not only think local and act global but also think global and act local. And much as many critics believe that globalisation is another form of neo-colonialism and imperialism, logic and evidence of global interdependence shows that a win-win global trade relationship can emerge on the basis of mutual respect but also of Africa taking command in promoting and defending its interests.

To address well all these new factors and conditions that impact tertiary education it would be imperative that a new system of what Professor Calestous Juma describes as "governing economic learning", a complex process that "involves interactions among Government, industry, academia and civil society" is structured and put in place. It is a system that views government as an agent of entrepreneurial leadership in promoting technological and management competencies through alliances with private enterprises and tertiary education institutions. It is regrettable though that the linkage between university research and the private sector in most African countries and in Tanzania in particular is very weak. The lack of such linkage, in the view of Professor Juma, "stands out as one of the main sources of inertia and waste in Africa's knowledge-based institutions". Promoting the linkage could act as a powerful strategic vehicle for translating basic research into marketable commercial products as well as for stimulating a whole set of scientific innovations. The University of the Future must create such linkage in a robust way.

But equally important, in responding to the growing demand for a larger pool of good quality graduates and postgraduates who fit the professional needs of a fast changing and competitive global, regional and national economic landscape, is the push to expand tertiary enrolments which public and private universities are currently unable to rise to for reasons of inadequate public funding and costly private investment. It is in this context that the *Challenge to the South,* the Report of the South Commission proposed that, "university expansion will have to be carefully planned and linked to development needs and priorities".

The luxury of having huge university complexes that offer numerous academic disciplines some of which are of little relevance to the needs of the day require revisiting. In addition, the application of what the South Commission Report calls "cost effective way of satisfying

some demand for higher education", for example, distance education, should be given greater attention. Distance education is yet to pick up in Africa. Tanzania has taken leadership in this area with the establishment of the Open University of Tanzania which, in its short existence, has made positive headway in addressing both the challenges of tertiary enrolment and of the needs for lifelong learning. Currently, the Open University of Tanzania has an enrolment of 22,000 students. In contrast, the University of South Africa (UNISA) had an enrolment of 250,000 students in 2008. It is clear that there are huge untapped enrolment opportunities which the Tanzanian University of the Future must grapple with.

Governance of Tertiary Institutions

The third and final factor which impacts tertiary and especially university education in Africa relates to internal governance of universities. This is an issue of significance bearing in mind the debate on the role of the University of the Future. There is a broad view that the African university is a key vehicle of national development, a central responsibility of the state, and that because public universities are overly funded by governments, their internal governance should fall under the strict control of governments. Indeed, in many African countries the policies and programmes of universities are influenced, if not directed, by the Government. In some cases, Vice Chancellors and Rectors are appointed by the Government. Tanzania had such system of appointments until a decade ago though the strong influence of the state in the echelons of university administration remains predominant. Members of the University Council, the principal administrative governance body, are still largely nominated by the Government. Such a governance control system is ensured through the budget funding mechanism.

The extent of the relationship between governmental regulation of universities and institutional autonomy and academic freedom has implications on the effective performance of the mission of universities. Reference has been made earlier to the Dar es Salaam Declaration on Academic Freedom and Social responsibilities of Academics which highlighted the centrality of the participation of universities in the struggle of the people; a struggle that was viewed as "inseparably linked with the struggle for the autonomy of institutions of higher education and the freedom to pursue knowledge without let, hindrance and interference from persons in authority." It is interesting to note that even in the case of the United Kingdom and in reaction to the 1997 Government Dearing Report which articulated four main functions of the UK Universities, Professor Mary Evans had argued that the Dearing Report was tantamount to imposing upon universities, "a quasi-democratic ethos of collusion with the values of a market economy." The functions of universities which the Dearing Report articulated are:

1) to be a significant force in the national and regional economy;

2) support research and consultancy and attract inward investment;

3) provide new employment and meet labour market needs; and

4) foster entrepreneurship among students and staff.

Within this context of the functions of the university, a central criticism of government regulation and control over the internal governance of universities is that universities may fail to "have the flexibility to respond adequately to the demands and challenges of the current global changes in the nature of higher education". From the perspective of declining budget funding by governments for public universities, such government regulations and influence may impede the prospects for universities to promote interdependence and collaboration with

the private sector in attracting additional resources. The upshot of this is that the public university may, by and by, lose out to the private universities in terms of quality of teaching and research. Indeed, some of the leading academic faculty in public universities may also move and take up positions in private universities where the terms of service could be more attractive.

In the context of this governance system of tertiary education and especially of the public university and its implications on the dynamism of universities, it is important, in thinking about the University of the Future, to re-examine how public universities should be managed and led. It is equally important to examine the appropriateness and necessity of university leadership being led by academicians. It is important to question, in this context, whether there should be a shift from the scholar-vice chancellor who teaches only a few classes and writes occasional papers whilst managing the university to having full time trained professional managers.

During the presidential leadership of the late Mwalimu Julius Nyerere, the University of Dar es Salaam was, for several years, led by Vice Chancellors who were not academic scholars. However, that was the period, evidently, when the University was tightly state-led and controlled under a one party political system. Should a similar system be tried today in the context that universities are increasingly becoming large and complex human organisations that have to respond to and cope with rapidly changing external environments and thus probably requiring a leadership that is more anchored on managerial professionalism than on mere academic scholarship? This question needs a dispassionate consideration.

Summary of challenges confronting African and Tanzanian Universities

In the concluding part of this paper, we proceed to contextualise the various challenges that confront the African and the Tanzanian Higher Education System and propose how the challenges can and should be addressed within the framework of the University of the Future. The following broad challenges have been identified:

- the global social, economic and political milieu has become more complex; less understandable, explainable and predictable;

- the mission of the university is in crisis. The university is torn between the traditional mission of intellectual inquiry and that of service to national development priorities;

- neo- liberalism has eroded the idea of a developmental state and, in turn, has put into question the idea of a developmental university;

- commercialisation of the university poses questions about the university's ethos on academic freedom and pursuit of intellectual inquiry;

- massification of higher education flowing from explosion in tertiary education enrolments and the the explosion in academic disciplines raise issues of quality of teaching and research;

- declining funding to public universities affects quality of teaching and research;

- the need to improve access and equity in higher education;

- the emergence of the role of private universities and implication on access and quality of education;

- the role of the Open University and other education delivery systems in promoting greater access to tertiary education;

- the performance of the university vis-à-vis the continuing challenges of poverty, ignorance, disease and mass unemployment;

- how to develop new sources of university funding through innovative approaches such as entrepreneurship and collaboration with the private sector.

These are some of the challenges that should inform an objective review and determination of the place and role of the University of the Future which constitutes the concluding part of this paper.

The University of the Future

It is evident from the foregoing analysis that what has worked well in the tertiary education in the past, in Africa and in Tanzania, has been legitimately challenged by the realities of the present and by the fast changing social, economic, political and technological developments. It is questionable though whether the realities of the present do not represent the continuation of the realities of the past and, to that extent, whether the place and role of the University of the Future should be viewed only in the context of what lies ahead in responding to the challenges of socio-economic transformation. It is instructive to revert to Mwalimu Nyerere's thinking about the role of the university in the context of the changing environment that impacts the African university.

Addressing a similar context about the University of the Future when inaugurating the University of East Africa in June 1963, Nyerere observed: "it is true that the university must be concerned with the year 2000 and beyond; but there is also the year 1963. It is **now** that we have to engage these three enemies, whose names have become a cliché, but who oppress us more than ever. A consciousness that current controversies would become part of history is invaluable, but the resulting detachment must be tampered by the recognition that our current actions will affect the whole future of our children and their children's children. Our

problems will not wait. We must do; demand that this University takes an active part in the social revolution we are engineering ---".

Put another way, the University of the Future must, importantly, be also the University of Now; a University that continues to be engaged and committed to addressing current challenges that impede fast economic growth and the eradication of poverty, ignorance and disease. In addition, there are the newer challenges of immediate effect and impact: challenges of human insecurity especially food insecurity, a non predictable global economic and political environment, grave youth unemployment, epidemics, climate change, ecological disturbance and the challenges related to issues of inequity (especially gender inequity), social cohesion and social justice. The University of the Future must be more closely engaged in tackling all these challenges.

The Form, Structure and Working of University of the Future

In this context, the University of the Future will increasingly take a different form, structure and working from what has ruled in the past and even presently in many cases. Such shift, which will be largely technology driven, is imperative as the university seeks to respond to the demographic transition, massification in tertiary education, declining funding for the public university, lowering of the cost of education delivery, investment in physical teaching infrastructure, boosting higher access and equity in higher education and the demands of the new knowledge economy. The shift in the operational systems of the traditional university has in fact raised a debate whether the traditional university, as we know it, will become obsolete. The UNESCO Assistant Director General for Communication and Information noted in July 2009, that "a business as usual attitude to the provision of higher education will

no longer do as demand rises along the question of equity, affordability and relevance --- the conventional system alone cannot meet the challenges. We must ask the question: will present day universities become dinosaurs of tomorrow?"

This is a pertinent question to pose in examining the nature of the University of the Future in the African and Tanzanian context for the reason that there is an evident gap between the sophistication of the ICT technology needed to shift from business as usual in higher education delivery, on the one hand, and the knowledge of such ICT applications by teachers and students, leave alone the non- wide availability and low cost supporting personal computers, internet connectivity and high speed bandwidth, on the other hand.

Role of ICT in University of the Future Education Delivery

In the context of massification of enrolments and the importance to boost access and equity, especially of women into universities, the University of the Future must embrace deeper, open and distance education in promoting equitable access to tertiary education. In his keynote address at the 25th International Conference on Improving University Learning and Teaching in July 2000, titled '*The University of the Future and the Future of Universities',* Sir John Daniel, the then Vice Chancellor of the UK Open University noted that given the ways in which higher education was changing, Open Universities will inevitably have greater importance in the 21st century. He outlined two realities that define the new agenda for higher education in the new economy. First, it is lifelong learning and, second, the use, diffusion and application of technology. Amplifying, Sir Daniel argued that the illusion of a degree for life is dying; higher education must become more accessible, diverse and flexible allowing adults in work and with family responsibilities and who wish to work as they also study, to continue

learning. Traditional university education misses the point of life long learning whose thrust is output of training programmes as opposed to the predominant focus on the search for truth and intellectual inquiry. Lifelong learning is focused on cutting costs of doing business through IT applications while promoting greater access and assuring quality at the same time.

The inevitable trend towards greater emphasis on distance learning will mean that the traditional University of the Future will also be compelled to pursue open network systems because students will increasingly find courses and learning resources online and for free. In sum, all universities of the future will necessarily have to make technology innovation the driver in classrooms and libraries. As such, the University of the Future will equally be compelled to adopt the modular course approach as well as the credit accumulation schemes across public, private and open universities. Acceptance of course credits should enhance flexi-education for the increasingly flexi-life of today and thereby propel more and more of a mix of online classes and on -- campus courses. Such cyber higher education system will be more affordable; it will better fit a career-relevant course skill; and it will foster greater collaboration by universities and colleges in the use of online learning as well as educational resources and material. Moreover, cyber-driven education will generally enhance greater access and equity in higher education.

The University of the Future and National Development

The idea that the University of the Future should be more developmental than even of the post –independence region is now more likely to be fertilised because Open universities and the whole system of distance education should enable greater focus to be placed on

occupational, vocational and professional curricula in higher education institutions. However, such thrust should not entail that the Open University and distance education generally be overly employment focused. The UK Open University, for example, apart from having the largest business school in Europe, also offers curriculum that"excites the human spirit", including courses in Latin, Greek and the Humanities. As such, the traditional mission of the university that dominantly promotes intellectual inquiry, confidence and autonomy in people and which, in my view, is highly important in developing leaders who are able to escape the "Black Swan" syndrome and fit Professor Gardner's five minds of the future must also form an important part of the University of the Future that is largely e-learning focused.

The Challenge of Quality Assurance in Distance Education

The overall challenge expected to feature with the growing development of the collaborative hybrid of the public and private funded university education as well as the growing role of distance education whether through the Open University system or through the traditional university, is one of quality assurance. Interestingly, in the context of the experience of the Open University of the UK, the principle of team work in teaching and in the development of course materials has not only enabled the achievement of economies of scale but also of high quality course materials. Yet, in the context of the obtaining environment of distance education in Africa and Tanzania, in particular, quality assurance must also be determined on the basis of the quality of the tutors some of whom are part time and unable to offer adequate quality time to students on both the academic and pedagogical dimensions. This means, therefore, that the University of the Future, as envisioned in the context of the Open University and distance education system, should be subjected to a highly intensive and rigorous regulatory control to ensure that quality of teaching and output is optimal.

Towards Greater Entrepreneurism in University of the Future

Another important dimension of the University of the Future is the question regarding declining levels of funding to the public university. It is a clear that the determining factor of differentiation in excellence in teaching and research will lie in the capacity by the university to marshal up private resources to boost university incomes. Some public universities in the past two decades have experimented with entrepreneurial activities to bridge the deficit in resources between government funding and what is optimally needed to make a university world class. Success, in this context, has been mixed and even marginal at best. Clearly, there is need for greater innovation in this funding area as the challenges of quality of teaching and research encroach on the overall standards of universities in Africa. One of the solutions in addressing these challenges could be the right sizing of public universities within the context of being better focused on academic disciplines that fit national development priorities.

Such a strategic move could assure better utilisation of scarce resources. Yet it could also lead to the dovetailing of the basic or traditional mission of the university including university autonomy. Could a university that is constricted in determining the academic disciplines it should teach be attractive enough to the best and the brightest, both teachers and students? Would it produce the effective leaders needed or would it simply produce technocrats and scientists?

These questions cannot be avoided where rightsizing of universities to fit national priorities is strictly enforced. They are questions that go to the root of the challenges of leadership in a brave new world that is less predictable; challenges which call for a new breed of leadership

and professionalism that is at ease with the new global and regional environment and is also able to interact across cultures and tackle diverse issues. In this context, curriculum formation that responds to creating adaptive professionals is imperative. At the University of Stellenbosch in South Africa, for example, curricula has been adjusted to the needs of research and development organisations. The university became the first one in the world to design and launch a micro-satellite as part of its training.

Promoting Regional Universities and Regional Accreditation

Specifically in the context of regional integration becoming an important pivot of economic competitiveness and growth of markets- for goods, services and capital, the University of the Future must become regionally focused, both in terms of location and curricula. To enable such university to operate effectively, it would be necessary to establish a regional regulatory regime to grant a regional accreditation to those universities that wish to operate on a regional scale. In the East African Community such agency could be the Inter-University Council of East Africa. In fact, there is presently a case in point where the Aga Khan University is establishing Universities, offering varying disciplines, in Kenya and Tanzania and has plans to establish other universities in Uganda, Rwanda and Burundi. The University wishes that all its universities at national levels award degrees from one accredited institution as opposed to different ones that are nationally located. Presently, the Aga Khan University has to apply for separate accreditations, a cumbersome and time consuming process and which fails to recognise the importance of a regionally branded university that corresponds with the regional integration vision.

Needed: Specialist Centres of Academic Excellence

The University of the Future in a country like Tanzania should also strive to focus on hiving off specialist professional and vocational programmes and creating specific institutes to cater for them. Why, after all, should our universities continue to be so monolithic in structure and form to the point that some of the erstwhile institutes such as the Institute of Development Management, Mzumbe and the Institute of Financial Management, Dar es Salaam, should have sought or seek to become fully fledged universities? It is my contention that we should learn from the organisation of famous universities in the world which have strategically hived off specialist and professional programmes to what are now world class Schools. Examples abound; they include Harvard Business School, Kennedy School of Government, the Wharton School of Finance, which is part of the University of Pennsylvania, London Business School and several others.

Empire building in institutions of higher learning does not correspond to the challenge of addressing today's and tomorrow's human capital needs which demand the development of specialist centres of excellence at tertiary education level. It is such new strategic direction that can foster greater collaboration between tertiary education and industry; collaboration that has the potential of diversifying the funding sources of higher education. More importantly, such collaboration would have the added advantage of making institutions of higher learning become truly world class.

Universities as Incubators of Business Enterprise

The University of the Future must also increasingly become the incubator of new business enterprises. It should not simply be a producer of trained work force. Unlike today when

African universities are principally centres of scientific and technological information; the University of the Future should develop strong links with the productive sectors of the national and regional economy. As Calestous Juma has pointed out, the university can conduct research and development for industry; create its own spin-off firms, be involved in capital formation projects, such as technology parks and agribusiness incubator facilities and introduce entrepreneurial training in all its curricula. This would mean that the University of the Future should be an agent of social and economic transformation as well as a development hub.

The idea of the university acting as incubator of enterprise is well evidenced by the development of the Pohang University of Science and Technology (POSTECH). Established in 1986, this University is a product of two outstanding visionaries: Prof. Hogil Kim, the founder President of the University and Tae-Joon Park, the Chair of the Pohang Iron and Steel Company (POSCO). Combining the scientific and educational expertise of Prof. Kim with Park's financial and enterprising abilities, POSTECH was born. It started with a Department of Life Sciences in 1989 then moved on to establishing a Graduate School of Information Technology in 1992 and then a Graduate School of Iron and Steel Technology in 1994. In 1998, POSTECH was selected by the respected AsiaWeek Magazine as the top university in science and technology in Asia. The story of POSTECH shows that private companies in the developing world can support higher education as a business as well as contributing to national economic development.

In Canada, universities perform 21% of all research and development conducted in Canada and produce 65% of Canadian scientific publications. There is a strong realisation in that country that national economic productivity is strongly driven and leveraged by innovation.

At the University of Alberta, for example, a ***Partnership for Innovation Programme*** has been established to deploy the potential synergy between the university's enormous and diverse knowledge capital and the demand for knowledge and innovation. It must be appreciated, however, that the potential synergy in this regard is not limited to science and technology fields. It also extends to social sciences such as education, arts, entrepreneurship and business management. In this context, some business schools in the United Kingdom have innovated their education systems by introducing a Consortium MBA where a group of companies collaborate with Business Schools in providing an MBA for their Executives. There is now a move to offer validation for such courses.

The University of the Future must also connect more closely with local communities where the challenges of low agriculture production, food insecurity, environment destabilisation and extreme poverty are more keenly felt. In Ghana, the government decided in 1992 to establish the University for Development Studies in the poorest northern region to specifically respond to the specific challenges of poverty, ecology degradation, high child malnutrition and welfare improvement. The teaching methodology at the multi-campus university is practice-oriented, community-based, problem-solving, gender-sensitive and interactive learning.

Mainstream ICT Education from Primary Education

A key challenge for the University of the Future that corresponds to what we have outlined above centres on the quality of enrolment to universities. For if technology is the prime driver in the delivery of mass and equity-based higher education then it should also mean that technology resources become more accessible to pupils and students, particularly in poor countries. The creation of the UNESCO-Microsoft Task Force on Higher Education and ICT

in July 2009 to assist the mobilisation of critical strategic resources for Ministries of Education in developing countries to promote effective use of ICT in post secondary teaching, research and learning is a positive intervention for tertiary education. The burning question remains- what happens at the level of primary and secondary school education?

On 28th April 2009 the East African Community entered into a Memorandum of Understanding with the One Laptop per Child Organisation based in Cambridge Massachusetts, USA to begin a process of addressing the ICT challenge in primary education in the EAC region. The Project rolled out through the MoU seeks to transform primary school education by ensuring that every school going child has access to a connected laptop computer called the XO laptop. This laptop should help to introduce the use of ICT in the learning process and thereby engender adeptness, versatility and confidence in independent sourcing of learning resources such as books and stimulate intellectual thinking from a young age.

Finally, the University of the Future must increasingly promote networks in research with other African and other international universities. African universities often lack the resources to undertake applied research leading to their underutilisation in promoting technological innovations for economic growth. Collaborating in research with the universities in the rich world and emerging economies would enable African universities of the future to be better able to leap frog into cutting edge technologies which can then be applied and defused to suit local conditions. Flexibility in undertaking such collaboration and especially the much needed strategic collaboration with industry at national and regional levels would necessarily demand lesser government control and regulation of the University of the Future. It is thus important that the governance structure and system of public

university be reviewed to allow the University of the Future to be more autonomous in determining its curricula, partnership and funding.

Conclusion

In concluding, let me end as I started. In his book, *The Age of Unreason,* Professor Charles Handy reminds us of the challenges which the University of the Future faces. He notes, "The world that our parents knew is not the world we live in today; nor is our world any guide to the way our children will live and love and work. We live in an Age of Unreason when we can no longer assume that what worked well once will work well again, when most assumptions can legitimately be challenged". This is the context that must inform the re-appraisal of the mission of the university. At the heart of such re-appraisal is the perceived mismatch between the traditional mission of the university and the external expectations that are rooted in massification of tertiary education, the impact of neo-liberal policies in welfare provisioning leading to declining funding of public universities and institutions of higher learning, the continuing challenges of poverty, ignorance, disease and high unemployment levels affecting the youth mainly, the rise of private universities and distance education driven largely by e-learning through Open Universities and, lastly, by the fast changing and complex national, regional and global social, economic and technological landscape. Clearly, the University of the Future has its mission cut for it; the demands for a strong focus and orientation on technology and entrepreneurship are paramount in making this university realise what is expected of it.

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